

## The Trechine Beetles (Coleoptera, Trechinae) from Mt. Wawu Shan in Central Sichuan, Southwest China

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**Abstract** Four new species of trechine beetles are described from Mt. Wawu Shan in central Sichuan, Southwest China. Two of them belong to the genus *Epaphiopsis*; one named *E. imurai* is a member of the subgenus *Pseudepaphius* and has no close relatives in China; the other, named *E. dao*, belongs to the *niba* group of the subgenus *Epaphiama*. One of the remaining two is a member of *Sinotrechiamia* but resembles *Trechiamia crassipes* at the first glance. It is named *Sinotrechiamia parvus* in view of its small size, and the latter species is moved from the genus *Trechiamia* to the genus *Protrechiamia*. The last new species is an eyeless endogean trechine belonging to a new genus, which resembles *Aepiblemus* and *Duvalioblemus* in many respects, but can be recognized on the spot by the presence of a setiferous dorsal pore on the 5th elytral stria and the peculiar modification of striation. The new name given is *Laoblemus crypticus*.

Wawu Shan is a famous table mountain lying on the borders of Hong'ya Xian and Yingjing Xian in central Sichuan, Southwest China. It stands on the Daxiang Ling Mountains, and is about 40 km distant to the west-northwest in a beeline from Mt. Emei Shan. The table mountain is surrounded by vertical cliffs more than 1,000 m high at the eastern and southern sides and extremely steep slopes at the other sides. Its table top is formed at the elevation of 2,700 to 2,800 m, and is covered with *Abies* forest with thick undergrowths of arrow-bamboos and various kinds of *Rhododendron* trees. Mt. Wawu Shan is protected as a national nature reserve, and is regarded by Taoists as a sacred place, since Laozi (or Laotzu), the founder of Taoism, is said to have spent a secluded life on the table top of this mountain and gone up to the heaven riding a crane.

It is not easy to make satisfactory collectings on the table top of Wawu Shan, since the floors of the *Abies* forests are thickly covered with entangled roots of arrow-bamboos and dead leaves. It is possible to make siftings in the bamboo thickets, particularly under *Rhododendron* trees, but beetles living under stones on clayey ground, endogean forms in particular, cannot be expected in such an environment. Bare grounds are found only on trails and on the banks of narrow streams, but all the trails are tightly paved with slates ca. 30×100 cm in size, which cannot be readily replaced to their original position when turned over. Banks of narrow streams are usually very steep or vertical, and very frequently rocky, so that they are not favourable for looking for tre-

chine beetles. Under such circumstances, we were compelled to examine the grounds beneath the pavement, and moved more than 200 slates. This was a painstaking and time-consuming way of taking rare trechines, but four specimens of three new species to be described in the present paper were found out by this method.

Of the four new species to be dealt with, two belong to two different subgenera of the genus *Epaphiopsis*. They are primarily humicolous in nature, but a teneral specimen of the larger species of the two was found in a cell made of yellow clay beneath a slate. As will be noted later, this species, to be named *E. imurai*, seems to be a usual inhabitant of lower places than the table top. One of the remaining two species is a member of the genus *Sinotrechiama*; two specimens of this species were found from beneath slates on the trail, and the other one was taken by sifting dead leaves accumulated at the side of the trail. The last species to be described is an anophthalmic endogean species, also found from beneath a slate. We have visited the table mountain four times, in the early summer and the autumn, and carefully searched for additional specimens of the non-humicolous species, above all males of the endogean one. Our efforts were, however, not repaid with any of the three species. Since the mountain is not easy of access, I have decided to introduce all these new species into science in the present paper. The abbreviations employed herein are the same as those explained in previous papers of mine.

Before going into further details, I wish to express my heartfelt thanks to Drs. Yûki IMURA, Yoshiaki NISHIKAWA and Masataka SATÔ for their kind help in searching for trechine beetles on Mt. Wawu Shan and its vicinities. Hearty thanks are due to Dr. Igor A. BELOUSOV, Dr. Ilia I. KABAK and Ing. Artur GITZEN for giving me opportunities to examine the types of Chinese trechines for comparison. Deep indebtedness should also be expressed to Mr. FAN Ting for his kind arrangement in pursuing our investigations.

*Epaphiopsis (Pseudepaphius) imurai* S. UENO, sp. nov.

(Figs. 1–3)

Length: 3.50–3.90 mm (from apical margin of clypeus to apices of elytra).

Relatively large species not directly related to any of the hitherto described Chinese species of *Pseudepaphius* (UENO, 1962, p. 70), externally resembling certain Japanese members of the subgenus (e.g., *E. morimotoi* S. UENO (1984, p. 146, figs. 1–3)) though genitally dissimilar to them.

Body short and broad, with small head, transverse prothorax and ovate convex elytra; apterous; microsculpture fine, sharply impressed and composed of transverse meshes and lines on head, mostly clear and formed by transverse lines on pronotum, and largely obliterated on elytra though vestige of fine transverse lines can be observed here and there. Concolorously dark reddish brown, shiny, feebly iridescent on elytra in the single fully mature specimen (holotype), with pale palpi and claw segments of fore legs, middle and hind legs somewhat lighter than dorsum.

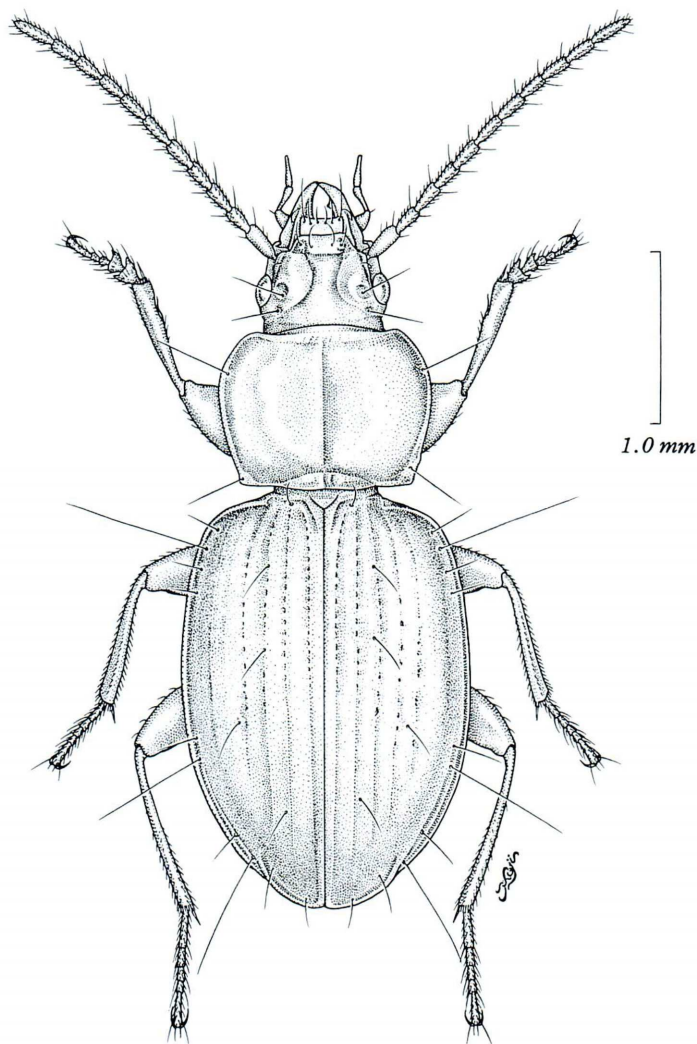


Fig. 1. *Epaphiopsis* (*Pseudepaphius*) *imurai* S. UENO, sp. nov., ♂, from the Shuangdong Xi at the eastern foot of Mt. Wawu Shan.

Head small, transverse, obviously wider than long, widest at the mid-eye level a little behind middle, with deep entire frontal furrows hardly angulate at middle but widely divergent in front and behind; frons and supraorbital areas gently convex, the latter bearing two pair of supraorbital setae, the anterior pair of which is foveolate at the roots; eyes small and flat; genae convex though short, evidently shorter than eyes (three-eighths to four-sevenths as long as eyes); neck very wide, with distinct anterior constriction; labrum transverse, slightly emarginate at the apex; mandibles stout, in-



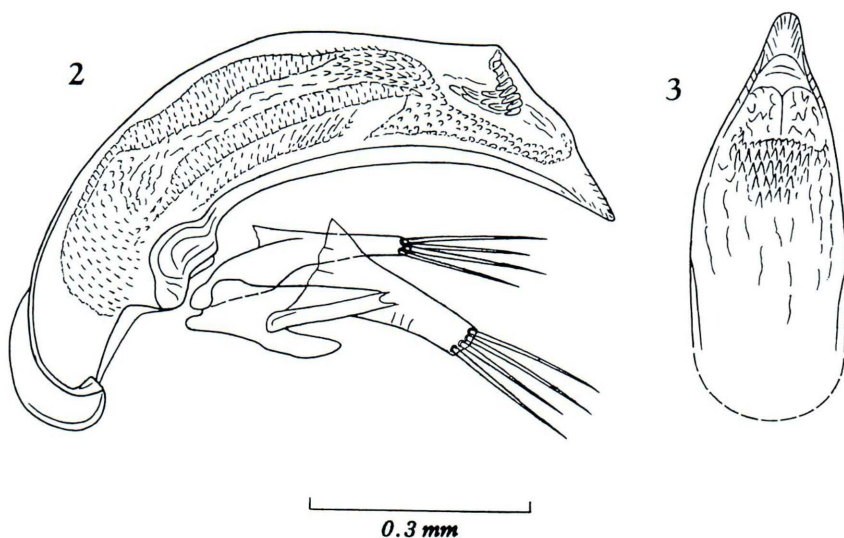
wardly hooked at the apices; palpi short and thin; antennae fairly slender, reaching basal two-sevenths of elytra in ♂, basal fourth of elytra in ♀, antennomeres 2–7 subequal in length to one another, each about three-sevenths as wide as long, antennomeres 8–10 slightly decreasing in length towards terminal antennomere, which is the longest though evidently narrower than scape.

Pronotum transverse, much wider than head, widest at about two-thirds from base, and more gradually narrowed towards base than towards apex; PW/HW 1.49–1.60 (M 1.54), PW/PL 1.39–1.42 (M 1.41), PW/PA 1.45–1.48 (M 1.46), PW/PB 1.25–1.30 (M 1.27); sides rather narrowly bordered throughout, especially narrowly near front angles, moderately arcuate in front, very feebly so or nearly straight behind middle, and not sinuate before base, with two pair of marginal setae, the posterior one of which is inserted almost on hind angles; apex narrower than base, PB/PA 1.14–1.16 (M 1.15), either nearly straight or slightly arcuate, with front angles rounded and either hardly or very slightly advanced; base either straight or invisibly arcuate at middle, briefly and very slightly oblique on each side just inside hind angle, which is obtuse but very slightly produced; dorsum convex, median line deeply impressed, not reaching apex but extending almost to base; apical transverse impression shallow, slightly wrinkled, basal transverse impression narrow but continuous, lightly arcuate as a whole, and laterally extending into basal foveae, which are declivous and fairly large; no postangular carinae; basal area small, narrow and smooth.

Elytra ovate, wider than pronotum, widest at about four-ninths from bases, and more gradually narrowed towards bases than towards apices, with narrow apical parts; EW/PW 1.28–1.36 (M 1.32), EL/PL 2.57–2.64 (M 2.60), EL/EW 1.37–1.43 (M 1.40); shoulders square though rounded, with prehumeral borders nearly straight and only a little oblique; sides moderately reflexed in front but narrowly so behind middle, nearly straight behind shoulders, feebly arcuate behind middle, and then narrowly and conjointly rounded at apices, each with no appreciable preapical emargination; dorsum strongly convex, particularly in apical halves, steeply declivous at lateral and apical parts, and lightly and narrowly depressed on the disc; striae clearly impressed and rather coarsely punctate on the disc but becoming shallower at the side and partially obliterated, striae 1–3 nearly entire, 4–5 superficial and obsolete near base, 6–7 fragmentary and evanescent, 8 impressed only near the apical set of marginal umbilicate pores; scutellar striole distinct, apical striole also distinct, hardly arcuate in front, and directed to the site of stria 5; intervals flat even near suture, apical carina obtuse; stria 3 with two setiferous dorsal pores at 1/8–1/7 and 1/3–3/7 from base, respectively; preapical pore usually adjoining stria 2 at 1/4–3/10 from apex; stria 5 or interval 5 with a single setiferous dorsal pore at 3/7–5/9 from base; marginal series of umbilicate pores regular.

Ventral surface glabrous and smooth; anal setae ordinary. Legs fairly slender though short; protibiae straight, lightly dilated towards apices; tarsi short, tarsomere 1 about as long as tarsomeres 2 and 3 combined in mesotarsus, longer than that in metatarsus; in ♂, protarsomeres 1 and 2 widely dilated and stoutly produced inwards at





Figs. 2–3. Male genitalia of *Epaphiopsis* (*Pseudepaphius*) *imurai* S. UENO, sp. nov., from the Shuangdong Xi at the eastern foot of Mt. Wawu Shan; left lateral view (2), and apical part of aedeagus, dorso-apical view (3).

apices.

Male genital organ small though heavily sclerotized, differing in configuration from those of any other known Chinese species of the genus. Aedeagus only one-third as long as elytra, gently arcuate as a whole though nearly straight for a short distance behind middle, moderately depressed, and widely membranous on dorsum; basal part fairly narrow in profile, lightly curved ventrad, and moderately emarginate at the sides of the posterior part of basal orifice; sagittal aileron large but not so wide; viewed laterally, median lobe gradually narrowed from behind middle towards the anterior end of apical orifice, then weakly curved ventrad and rather abruptly acuminate to pointed extremity; viewed dorsally, apical part broad at the level of the anterior end of apical orifice, narrowed posteriorly, and produced into a short apical lobe blunt at the tip; ventral margin slightly emarginate at middle in profile. Inner sac devoid of differentiated copulatory piece, wholly covered with minute scales and teeth, which are moderately sclerotized along two longitudinal folds of sac membrane, forming two elongate scale-patches one above the other at the left side; anterior margin of apical orifice edged with heavily sclerotized teeth, which delimit the posterior end of a small dorsal teeth-patch lying horizontally. Styles unequal in size and shape, left style much larger and broader than the right, and with a well developed ventral apophysis, each style bearing four apical setae.

*Type series.* Holotype: ♂, 19-X-2004, Y. NISHIKAWA leg. Allotype: ♀, paratype: 1 ♀ (both somewhat teneral), 2-VI-2004, Y. IMURA leg. All deposited in the collection of the Department of Zoology, National Science Museum (Nat. Hist.), Tokyo.

*Type locality.* Shuangdong Xi, 1,320 m in altitude, at the eastern foot of Mt. Wawu Shan in Wawushan Zhen of Hong'ya Xian, central Sichuan, Southwest China.

*Further specimens examined.* 1 ♀ (teneral), Mt. Wawu Shan, E side of table top, 2,760 m alt., Wawushan Zhen, Hong'ya Xian, 23–VI–2004, S. UENO leg. (NSMT). 1 ♀, Fuxing Cun, 1,620 m alt., Wuzhuang Xiang, Hong'ya Xian, 24–VI–2004, S. UENO leg.; 1 ♀ (teneral and somewhat damaged), same locality and date, M. SATÔ leg. (NSMT).

*Notes.* This is a problematical species whose true affinity is not certain at the present moment. In facies, it closely resembles certain Japanese species of *Pseudepaphius*, but the resemblance may have resulted from convergence seeing that the present species differs from Japanese ones in the mode of elytral striation and conformation of the male genitalia. On the other hand, there still remains a possibility that *E. imurai* is a true relative of Japanese members; in that case, the differences may have developed during long isolation. Further investigations are needed for clarifying its true status.

Unfortunately, only the holotype of this new species is fully mature, the remaining five being more or less teneral. The specimens of the type series were collected in a deciduous broadleaved forest at the left side of the Shuangdong Xi River by sifting dead leaves accumulated on a rather steep slope. The locality is about 1,440 m lower in altitude than that at the eastern side of the table top. The mature male was taken in October, while the two teneral females were taken in June. Judging from the fact that all the specimens collected in June at the type locality and two other localities are more or less teneral, emergence of this trechine seems to take place early in the summer, even though it is mainly distributed in middle altitude. As was noted in the introduction of this paper, the only specimen taken on the table top, 3.60 mm in the length of body, was found in a small clay cell beneath a slate on the trail. It agrees well with the type series though the elytra are somewhat broader. The standard ratios are: PW/HW 1.48, PW/PL 1.46, PW/PA 1.46, PW/PB 1.28, PB/PA 1.16, EW/PW 1.43, EL/PL 2.80, EL/EW 1.33.

The two specimens from Fuxing to the east of Mt. Wawu Shan were sifted out from small heaps of dead bamboo leaves accumulated at the edge of a bamboo grove near the source of a narrow stream. They are slightly larger in size than the type series (4.00–4.15 mm in the length of body), and are different from the latter in the smaller eyes, less transverse prothorax with more regularly arcuate sides, a little longer elytra, and so on. The standard ratios in the perfect specimen are as follows: PW/HW 1.53, PW/PL 1.34, PW/PA 1.57, PW/PB 1.30, PB/PA 1.20, EW/PW 1.33, EL/PL 2.63, EL/EW 1.47. A new subspecies could be recognized for the Fuxing population, especially on the basis of the different configuration of the prothorax, but I prefer to postpone the proposal until fully mature males are available for my study.



*Epaphiopsis (Epaphiama) dao* S. UÉNO, sp. nov.

(Figs. 4–6)

Length: 2.75–3.15 mm (from apical margin of clypeus to apices of elytra). Belonging to the *niba* group of the subgenus *Epaphiama* and closest to *E. niba* S. UÉNO (1998, p. 267, figs. 1–3) known from Mt. Niba Shan on the Daxiang Ling Mountains, but distinguished from it by broader facies, wider head, less contracted pronotum at both apex and base with the sides less strongly arcuate, and usually wider elytra less pointed at the apices and with the sides less regularly arcuate in basal third. Also different from *E. niba* in the configuration of male genitalia.

Colour more or less darker than in *E. niba*, sometimes infuscated in head and elytra, the latter of which are hardly iridescent. Microsculpture as in *E. niba*.

Head transverse, obviously wider than long, widest at the mid-eye level which lies a little behind middle; dorsum depressed, with deep entire frontal furrows widely divergent posteriad; frons and supraorbital areas gently convex; eyes small and flat, a little longer than genae in ♂, usually as long as or a little shorter than genae in ♀; genae more or less convex, usually tumid in ♀; neck very wide, with the anterior constriction deeply marked at the sides; labrum moderately emarginate at the apex; mandibles stout though sharply hooked at the apices; palpi short and stout; antennae short and stout, variable in length, sometimes even at the opposite sides, usually reaching basal sixth to fifth of elytra in ♂, basal eighth to two-elevenths of elytra in ♀, antennomeres 2–4 subequal in length to one another, each very slightly longer than succeeding ones, each of which is suboval and four-sevenths as wide as long, terminal antennomere the longest, slightly longer but narrower than scape.

Pronotum transverse, wider than head, wider than long in a similar proportion, widest at a level between three-fifths and two-thirds from base, and more gradually contracted towards base than towards apex; PW/HW 1.35–1.43 (M 1.39), PW/PL 1.32–1.45 (M 1.38), PW/PA 1.36–1.46 (M 1.43), PW/PB 1.32–1.43 (M 1.37); sides moderately reflexed throughout, gently arcuate before middle, less so in front and behind, and hardly sinuate before hind angles, which are obtuse and sometimes very slightly produced laterad, with two pair of marginal setae, the posterior pair of which are very slightly removed forwards; apex either straight or slightly emarginate, usually somewhat narrower than base, PB/PA 1.00–1.11 (M 1.05), with front angles narrowly rounded and slightly produced forwards; base either straight or very slightly arcuate at middle and slightly emarginate on each side inside hind angle; dorsum convex, steeply declivous at anterior lateral parts, median line deeply impressed on the disc and briefly widened in basal area; apical transverse impression mal-defined, longitudinally wrinkled; basal transverse impression also mal-defined, with a longitudinal foveole on each side of median line, and laterally arcuate posteriad; basal foveae fairly large and deep; postangular carinae distinct though obtuse; basal area more or less uneven.

Elytra subovate, wider than pronotum, longer than wide in a similar proportion, widest at about four-ninths from bases, weakly narrowed antieriad towards shoulders,

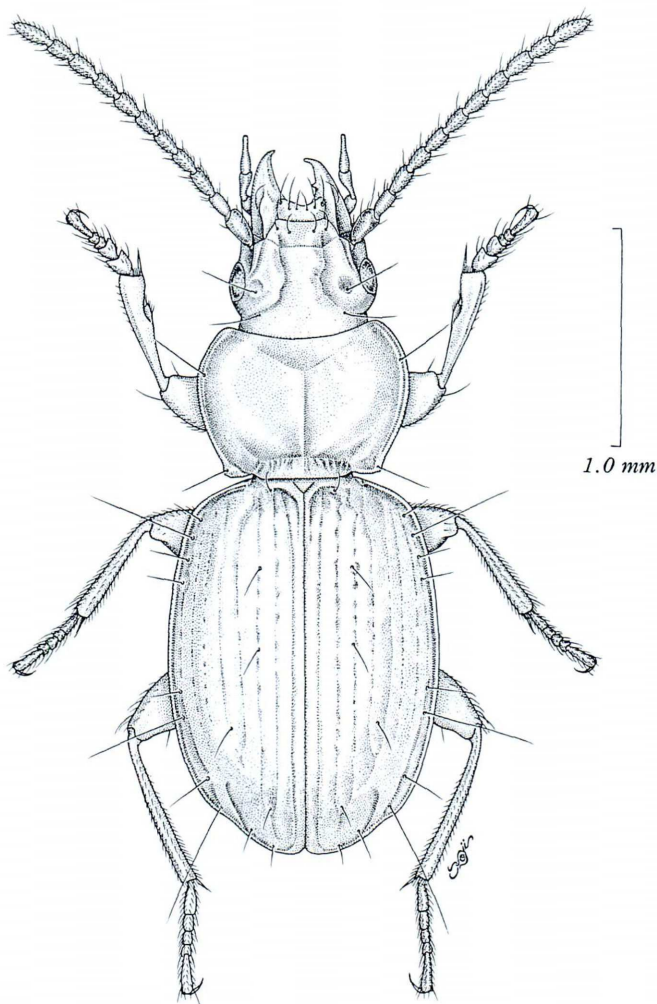
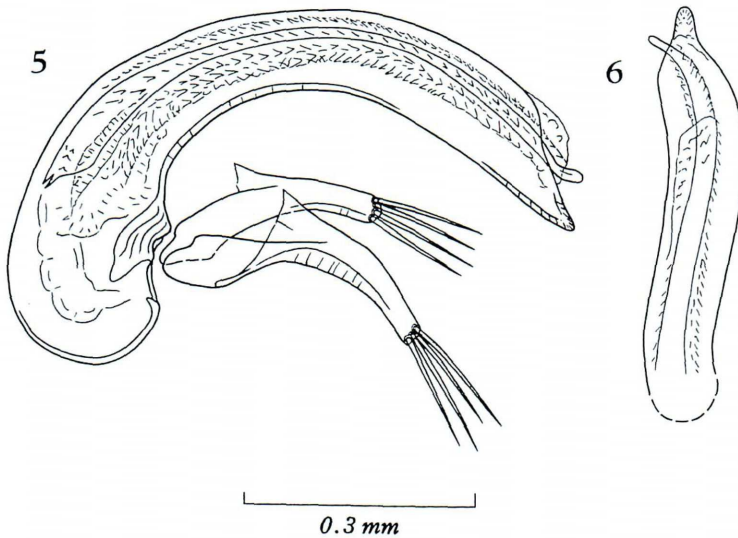


Fig. 4. *Epaphiopsis (Epaphiama) dao* S. UÉNO, sp. nov., ♂, from Mt. Wawu Shan.

and widely rounded at apices, which form a small re-entrant angle at suture; EW/PW 1.31–1.42 (M 1.34), EL/PL 2.40–2.65 (M 2.52), EL/EW 1.29–1.43 (M 1.36); shoulders distinct though rounded, with prehumeral borders only slightly oblique; sides narrowly bordered throughout, either very feebly arcuate or nearly straight before middle and moderately arcuate in apical third, each with a slight preapical emargination; dorsum convex, steeply declivous at lateral and apical parts; striae nearly entire though shallower at the side than on the disc, vaguely crenulate, 1–3 deeply impressed, 4 and 5 shallower than inner ones, 6 and 7 fine and often fragmentary, 8 distinct behind middle; scutellar striae short but distinct; apical striae clearly impressed, moderately





Figs. 5–6. Male genitalia of *Epaphiopsis (Epaphiama) dao* S. UENO, sp. nov., from Mt. Wawu Shan; left lateral view (5), and apical part of aedeagus, dorso-apical view (6).

curved, and free at the anterior end though directed to stria 5; intervals flat even near suture, apical carina obtuse; stria 3 with two setiferous dorsal pores at  $2/11-2/9$  (usually about  $1/5$ ) and  $2/5-1/2$  from base, respectively; preapical pore located at the apical anastomosis of striae 2 and 3 or adjoining stria 2 behind the level of the anterior end of apical striole, and a little more distant from apex than from suture; stria 5 with a single setiferous dorsal pore at about  $3/5$  from base, the pore being located often at an anastomosis of striae 4 and 5; marginal umbilicate pores aggregated and regular.

Ventral surface smooth; anal setae ordinary. Legs short and stout; protibiae moderately dilated towards apices and shallowly grooved on each external face; tarsi short, tarsomere 1 shorter than tarsomeres 2 and 3 combined in both meso- and metatarsi; protarsomeres 1 and 2 widely dilated and stoutly produced inwards at apices in ♂.

Male genital organ similar in basic conformation to that of *E. niba* S. UENO (1998, p. 267, figs. 1–3), but the aedeagus is much less arcuate, especially in apical half, compressed in apical part, and with narrowly produced apical lobe. Aedeagus about two-fifths as long as elytra, sigmoidally curved in dorsal view, and strongly arcuate in proximal half, with large basal part strongly curved ventrad; basal part rounded, with small basal orifice whose sides are hardly emarginate; sagittal aileron absent; viewed dorsally, apical part curved to the right, and then to the left and produced into a short narrow apical lobe blunt at the extremity; viewed laterally, apical lobe short, not curved ventrad, and abruptly narrowed towards pointed extremity; in profile, ventral margin deeply emarginate before middle but nearly straight behind there. Inner sac armed with a very long slender copulatory piece nearly as long as aedeagus, with the

basal part gradually dilated proximad and the narrow hyaline apical portion produced to the right from apical orifice; sac membrane wholly covered with minute scales and teeth, forming a long sheath of copulatory piece. Styles short and narrow, left style much longer than the right, arcuate, and devoid of ventral apophysis, each bearing four apical setae.

*Type series.* Holotype: ♂, allotype: ♀, centre of table top, 23–VI–2004, S. UÉNO leg. Paratypes: 6♂♂, 4♀♀ (incl. two badly damaged specimens (1♂, 1♀) collected by SATÔ), 23–VI–2004, S. UÉNO & M. SATÔ leg.; 1♂, 5♀♀, NW side of table top, 23–VI–2004, S. UÉNO & M. SATÔ leg.; 1♀, E side of table top, 2,760 m alt., 23–VI–2004, S. UÉNO leg.; 2♂♂ (teneral), 1♀, E side of table top, 2,640 m alt., 18–X–2004, Y. NISHIKAWA leg. All deposited at present in the collection of the Department of Zoology, National Science Museum (Nat. Hist.), Tokyo.

*Type locality.* Mt. Wawu Shan, 2,640–2,780 m in altitude on table top, in Wawushan Zhen of Hong'ya Xian, central Sichuan, Southwest China.

*Notes.* Judging from configuration of the male genitalia, this new species seems closer to *E. niba* from Mt. Niba Shan than to *E. budhaica* (DEUVE) (1988, p. 256, figs. 6, 16, 23; UÉNO, 1998, p. 284, figs. 6–7) from Mt. Emei Shan. As in the former species, the median lobe of male genitalia is sigmoidally curved in dorsal view though to a lesser extent, and the apical lobe is pointed at the extremity in lateral view. Another proof of this affinity is the position of the preapical pore on the elytra, which is located at the apical anastomosis of the 2nd and 3rd striae. Its type locality is also nearer topographically to that of *E. niba* than to that of *E. budhaica*.

*Epaphiopsis dao* is a subalpine species rather widely distributed on the table top of Mt. Wawu Shan. It dwells under dead leaves in the thickets of arrow-bamboos, particularly under *Rhododendron* trees, in the *Abies* forest, but does not occur beneath slates on trails. Such a habitat preference is common to all the members of the *niba* group.

The new specific name of the present species is derived from Dao (usually spelled “Tao” in English) of Taoism, whose founder, Laozi, is said to have spent his last years on the table top of Mt. Wawu Shan.

### *Sinotrechiamia parvus* S. UÉNO, sp. nov.

(Figs. 7–9)

Length: 5.15–5.50 mm (from apical margin of clypeus to apices of elytra).

Smaller than any of the congeners hitherto known, and comparable in this respect, and also in general appearance, to *Protrechiamia crassipes* (S. UÉNO, 1997).<sup>1)</sup> It is, however, evidently different from the Meigu species in the typically cordate pronotum

<sup>1)</sup> *Protrechiamia crassipes* (S. UÉNO, 1997), comb. nov.

*Trechiamia crassipes* S. UÉNO, 1997, J. speleol. Soc. Japan, **22**, p. 38, fig. 1; type locality: Dafengding on the Daliang Shan Mountains in Meigu Xian.



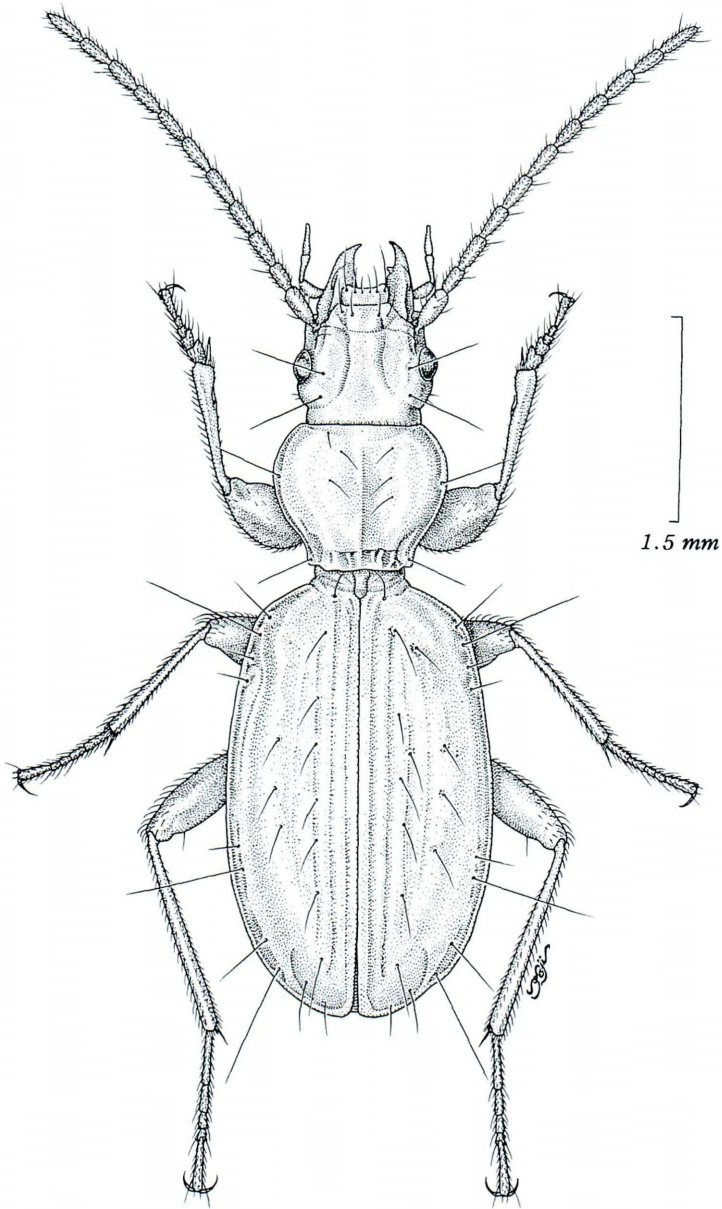


Fig. 7. *Sinotrechiana parvus* S. UENO, sp. nov., ♂, from Mt. Wawu Shan.

bearing discal hairs, the degeneration of microsculpture and outer striae on elytra, which lack in the isolated setiferous pore on the stria 2, and the darker coloration. All these features are characteristic of *Sinotrechiana* S. UENO (2000, p. 348), even though

this new species looks like *P. crassipes* at the first glance.

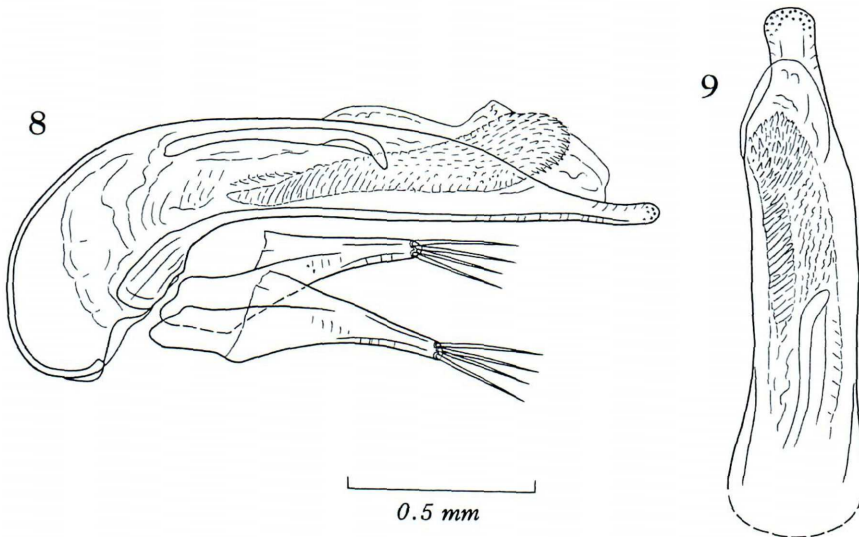
Body elongate, with fairly large fore body and relatively small and narrow hind body; surface glabrous on both dorsum and venter except for genae, which bear vestiges of small hairs; microsculpture evanescent on pronotum and elytra, though vestiges of fine transverse lines are fragmentarily detectable, mostly perceptible on head as fine, irregularly transverse lines and microscopical meshes. Inner wings absent. Colour dark reddish brown, partially infuscated, polished, and vaguely iridescent on elytra; palpi, venter of hind body, and legs more or less lighter than dorsum.

Head fairly large, transverse, about 1.2 times as wide as long, and depressed on dorsum; frontal furrows clearly and evenly impressed, not angulate at middle, and widely divergent both in front and behind; frons and supraorbital areas gently convex, the latter bearing two pair of supraorbital setae on subparallel lines; eyes small though moderately convex; genae shorter than eyes, about four-fifths as long as the latter, lightly convex, and provided with a few vestigial hairs; neck wide, with the anterior constriction deeply marked; labrum transverse, shallowly emarginate at the apex; mandibles stout; mental tooth porrect, truncated at the tip; palpi fairly stout; antennae fairly stout, reaching basal third of elytra, pedicel the shortest, about two-thirds as long as antennomere 3, which is slightly longer than 4, antennomeres 4–7 subequal in length to one another, each subcylindrical and about three times as long as wide, antennomeres 8–10 very slightly decreasing in length towards terminal antennomere, which is about as long as antennomere 3 and evidently narrower than scape.

Pronotum transverse cordate, much wider than head, obviously wider than long, widest at about five-eighths from base, and more strongly contracted towards base than towards apex, with the sides strongly rounded for the most part; PW/HW 1.23–1.26 (M 1.25), PW/PL 1.17–1.25 (M 1.21), PW/PA ca. 1.49–1.54 (M ca. 1.51), PW/PB 1.64–1.68 (M 1.66); sides moderately bordered near the widest part, the borders becoming narrower both in front and behind, strongly and regularly arcuate in apical two-thirds, less so before ante-basal sinuation, which is brief but deep, located at basal seventh to sixth, and then nearly parallel for a short distance to hind angles; two pair of marginal setae present, the posterior pair being located almost on hind angles; apex evidently wider than base, feebly arcuate, PB/PA ca. 0.89–0.94 (M ca. 0.91) [PA/PB ca. 1.06–1.13 (M ca. 1.10)], with front angles rounded off; base nearly straight for the most part, briefly and obliquely emarginate on each side just inside hind angle, which is small, nearly rectangular or slightly obtuse; dorsum convex, rather steeply declivous in lateral and basal parts, with several short discal hairs on each side of median line; median line sharply impressed, not reaching apex but nearly reaching base; basal area short, longitudinally strigose; basal transverse impression uneven, not smoothly continuous, basal foveae fairly large but not deep, uneven at the bottom; postangular carinae short and obtuse.

Elytra elongated oval with subparallel sides, wider than pronotum, much longer than wide, and widest at about middle; EW/PW 1.45–1.51 (M 1.48), EL/PL 2.85–3.09 (M 2.94), EL/EW 1.63–1.68 (M 1.65); shoulders square though rounded, with humeral





Figs. 8–9. Male genitalia of *Sinotrechiamma parvus* S. UENO, sp. nov., from Mt. Wawu Shan; left lateral view (8), and apical part of aedeagus, dorsal view (9).

borders faintly arcuate and somewhat oblique; sides rather widely reflexed in basal halves, the borders diminishing posteriad to before apices, nearly straight behind shoulders, very feebly arcuate at middle, and rather widely rounded at apices without appreciable preapical emargination, a small re-entrant angle being formed at the suture; dorsum moderately convex though longitudinally depressed on the disc, steeply declivous at the sides, more gently so in apical area; striae superficial, obliterated at the side, striae 1–3 moderately impressed in apical two-fifths, and more or less crenulate, 1 entire, 2–3 becoming shallower and usually obliterated in basal area, 4 usually traceable only behind middle, 5–7 evanescent, 8 irregularly impressed behind the middle set of marginal umbilicate pores; scutellar striole very short; apical striole short but clearly impressed, moderately curved, and free at the anterior end though directed to the site of stria 5; intervals flat; stria 3 with five or six (usually six) setiferous dorsal pores between basal eighth and apical fifth, several (one to three) proximal pores sometimes shifted onto interval 3; stria 5 with three or four (usually four) setiferous dorsal pores between basal seventh and apical two-sevenths, proximal one of them exceptionally shifted onto interval 5; preapical pore located at the apical anastomosis of striae 2 and 3 behind the level of the anterior end of apical striole, and obviously more distant from apex than from suture; marginal umbilicate pores aggregated and regular.

Ventral surface glabrous and smooth; each sternite with a pair of paramedian setae; sexual setae on anal sternite ordinary. Legs fairly short and stout; protibiae straight, moderately dilated towards apices, finely grooved on the external face, and completely glabrous on the anterior face; tarsi fairly thick, mesotarsus about four-fifths

as long as mesotibia, metatarsus about three-fourths as long as metatibia, tarsomere 1 shorter than the following three tarsomeres combined in both meso- and metatarsi; in ♂, protarsomeres 1 and 2 widely dilated, stoutly produced inwards at apices, and furnished beneath with adhesive appendages.

Male genital organ long and moderately sclerotized. Aedeagus slender, nearly a half as long as elytra, nearly straight in lateral view except for basal part, which is rather abruptly curved ventrad, slightly curved to the right in dorsal view, and widely membranous on dorsum, with short spatular apical lobe; basal part fairly large, with small basal orifice whose sides are moderately emarginate; sagittal aileron vestigial; viewed dorsally, apical part abruptly narrowed into fairly broad, subparallel-sided apical lobe, whose tip is subtruncated; viewed laterally, apical part gradually narrowed into narrow apical lobe, which is somewhat reflexed and blunt at the extremity; ventral margin nearly straight in profile. Inner sac armed with a large elongate teeth-patch widening apically and a narrow copulatory piece; teeth-patch compact, consisting of variously sized, moderately sclerotized teeth and scales, some of which are fairly large, particularly at the right ventral side, but the others are minute and partially file-like in arrangement; copulatory piece located at the dorsal side of the proximal part of teeth-patch, thin, elongate, and abruptly curved at the apical part towards the left ventral side. Styles small, tapered apically, and devoid of ventral apophyses, left style obviously longer than the right, each bearing four setae at the apex.

*Type series.* Holotype: ♂, centre of table top, 23–VI–2004, S. UENO leg. Allotype: ♀, centre of table top, 2–VI–2004, Y. IMURA leg. Paratype: 1 ♂, E side of table top, 23–VI–2004, S. UENO leg. All deposited in the collection of the Department of Zoology, National Science Museum (Nat. Hist.), Tokyo.

*Type locality.* Mt. Wawu Shan, table top, 2,750–2,780 m in altitude, in Wawushan Zhen of Hong'ya Xian of central Sichuan, Southwest China.

*Notes.* Through the courtesy of Dr. BELOUSOV and Mr. GITZEN, I was able to examine all the theretofore described species of *Sinotrechiama* and *Prototrechiama*, and found that *S. parvus* and *P. crassipes* are isolated to some extent from their respective congeners. One more species of the former genus, *Sinotrechiama duboisi* was recently described by DEUVE (2004, p. 228, fig. 12), who expressed the opinion that *Prototrechiama* had better be regarded as a subgenus of *Sinotrechiama*, and that his new species should belong to a particular species-group in view of the presence of a large copulatory piece in the aedeagal inner sac. I cannot make comment on this matter for the present, but would like to point out that the members of *Sinotrechiama* in a strict sense may be widely distributed in northern and central Sichuan, but that the members of *Prototrechiama* seem to occur only in the southern part of the province. Seizing this opportunity, I am going to move *Trechiama crassipes* to *Prototrechiama*, though the species is known only from females even at the present moment.

*Sinotrechiama parvus* is an inhabitant of the *Abies* forest on the table top of Mt. Wawu Shan. The holotype was found from beneath a slate on the trail near a small bridge spanning a narrow stream at the centre of the table top. The allotype was taken



by IMURA nearly at the same place but by sifting dead leaves accumulated at the side of the trail. The paratype came out from beneath a slate on the trail just above a small pool of water at the eastern side of the table top. Both the holotype and the paratype were found on moist yellowish clay and ran very quickly when exposed.

Genus *Laoblemus* S. UÉNO, nov.

Type species: *Laoblemus crypticus* S. UÉNO, sp. nov.

A trechine genus of uncertain affinity, though similar in many respects including general appearance to *Aepiblemus* BELOUSOV et KABAK (1993, p. 137) and *Duvalioblemus* DEUVE (1995, p. 16), particularly to the former. Much larger than any of the described species of these genera, and distinguished at first sight from them by the presence of a setiferous dorsal pore on the 5th elytral stria.

Body elongate, with large head, small prothorax, and long elytra; surface glabrous on both dorsum and venter except for genae and the lateral parts of elytra; microsculpture sharply impressed on head and pronotum, mostly consisting of either isodiametric or wide meshes on the former, and of fine transverse meshes and lines on the latter; microsculpture of elytra also consisting of fine transverse lines, though partially obliterated. Apterous, anophthalmic and depigmented. Colour dark reddish brown, shiny.

Head large, wider than long, with entire frontal furrows deep and wide in anterior two-thirds and widely divergent posteriad towards neck constriction; supraorbital areas with two pair of supraorbital setae on lines convergent posteriorly; eyes absent; genae convex, sparsely covered with short hairs. Labrum transverse, shallowly emarginate at the apex. Mandibles stout though sharply hooked at apices; right mandible tridentate. Mentum fused with submentum, though trace of labial suture is perceptible at the lateral parts, moderately foveolate on each side of median ridge, with short simple mental tooth; submentum sexsetose. Palpi short and stout; penultimate segments swollen at the apical parts, arcuate and quadrisetose in labial palpus, simply dilated apicad and completely glabrous in maxillaries; apical segments elongated subconical and longer than penultimate segments in both the palpi. Antennae short and stout, subfiliform.

Pronotum small, cordate, contracted at base, and convex; sides entirely bordered, reflexed, and practically devoid of marginal cilia though a few vestiges of them can be detected near front angles, with two pair of marginal setae, of which the anterior pair is located a little before the widest part and the posterior pair just before hind angles; apex obviously wider than base; front angles hardly produced though distinct, hind angles reflexed, nearly rectangular; dorsum with three or four discal hairs on each side of median line, whose arrangement is not regular; basal transverse impression narrow but continuous; basal area narrow, with shallow longitudinal rugae. Scutellum small though distinct.

Elytra oblong-oval, convex, wider than pronotum, and much longer than wide, without transverse furrow on basal peduncle; shoulders not sharply marked; sides narrowly bordered throughout and sparsely ciliated; striae rather deeply impressed and

coarsely punctate on the disc but becoming much shallower at the side, striae 3 and 4 anastomosing just behind middle and not extending to the field of apical striole, stria 8 deepened behind the middle set of marginal umbilicate pores though irregular to some extent; scutellar striole absent; apical striole short and shallow, moderately curved, and directed to stria 7 at the anterior end; interval 8 and anterior parts of 6 and 7 sparsely covered with minute erect hairs; stria 3 with two setiferous dorsal pores; stria 5 with a single setiferous dorsal pore behind middle, just behind the apical anastomosis of striae 3 and 4; preapical pore located at the apical anastomosis of striae 2 and 5, and much more distant from apex than from suture; marginal umbilicate pores not perfectly aggregated, the first pore of the humeral set shifting postero-internally, and the fourth pore approaching to the third.

Ventral surface glabrous; each sternite with a pair of paramedian setae; anal sternite quadrisetose in ♀. Legs fairly long though stout; protibiae nearly straight, moderately dilated towards apices, entirely pubescent, and not externally grooved; tarsi short.

Male genitalic features unknown.

*Range.* Known so far only from Mt. Wawu Shan in central Sichuan.

*Notes.* This is a remarkable new genus whose true affinity is not certain. It is most closely similar to *Aepiblemus* from Kazakhstan and *Duvalioblemus* from Sichuan, but is readily distinguished from them by the peculiarly modified striation of the elytra bearing a well developed setiferous dorsal pore on the 5th elytral stria behind middle. With the exception of the *Epaphiopsis* and *Trechiana* groups, existence of setiferous dorsal pore(s) of the external series is rather seldom met with in the Trechini, and the *Trechoblemus* series to which belong both *Aepiblemus* and *Duvalioblemus* is the same in this regard. It is therefore possible that *Laoblemus* actually belongs to a group other than the phyletic series of *Trechoblemus*. However, *Laoblemus crypticus* looks like an archaic species of the genus-group in many respects with the exception of the elytral peculiarities. Since only a female specimen is available for this study in spite of repeated painstaking searches, I have to leave the phylogenetical problem of *Laoblemus* unclarified for the time being.

The new generic name *Laoblemus* is derived from Laozi, the founder of Taoism, in memory of his cryptical life on the table top of Mt. Wawu Shan.

***Laoblemus crypticus* S. UENO, sp. nov.**

(Fig. 10)

Length: 3.60 mm (from apical margin of clypeus to apices of elytra).

Concolorously dark reddish brown, shiny, with pale palpi; abdominal sternites a little lighter than dorsum.

Head wider than long, HW/HL 1.17, widest at about basal third, and more gradually narrowed anteriorly than posteriorly; frontal furrows not angulate at middle, frons and supraorbital areas moderately convex; genae tumid, strongly convex especially at the posterior parts; neck very wide, neck constriction deeply marked at the sides; antennae



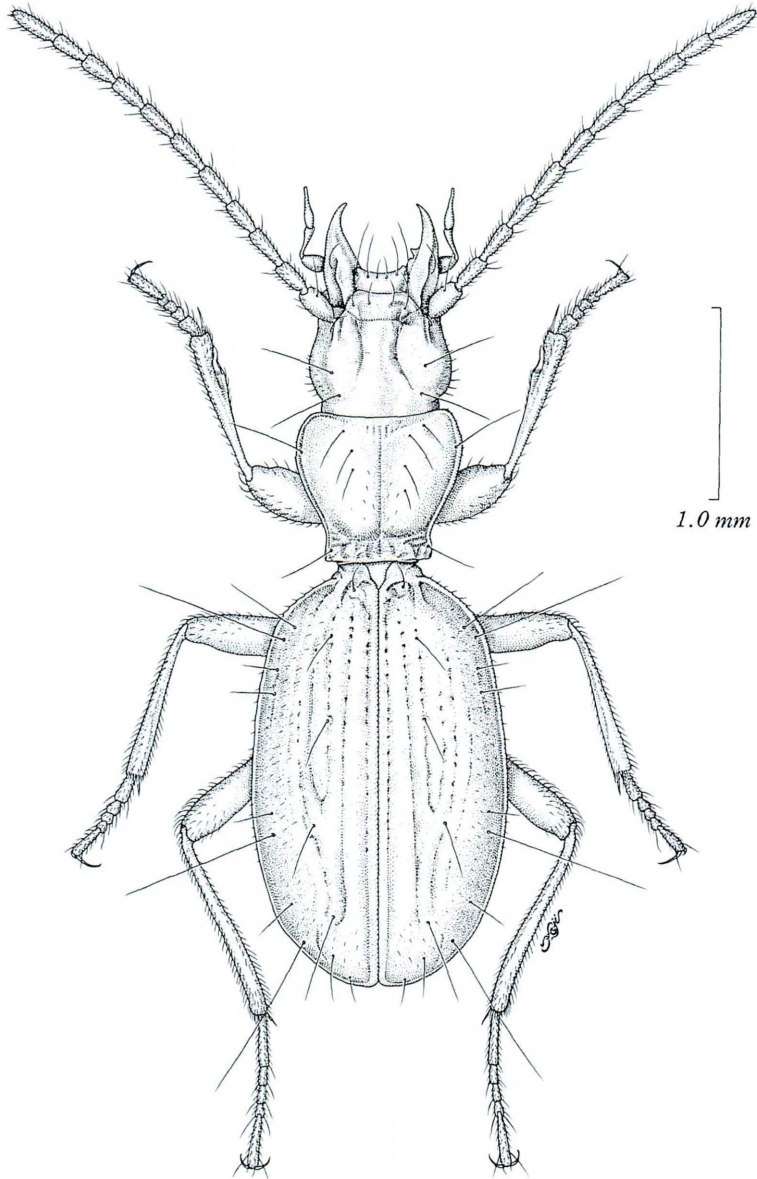


Fig. 10. *Laoblemus crypticus* S. UENO, gen. et sp. nov., ♀, from Mt. Wawu Shan.

reaching basal two-fifths of elytra, pedicel the shortest, about as long as antennomere 10 and about three-fourths as long as antennomere 3, which is about as long as terminal antennomere, antennomeres 4–6 each slightly shorter than 3, subcylindrical, and nearly three times as long as wide, 7–10 slightly decreasing in length towards apex,

terminal antennomere about 1.2 times as long as scape though evidently narrower than the latter.

Pronotum cordate, wider than head, a little wider than long, widest at about three-fourths from base, and a little more gradually narrowed anteriorly than posteriorly; PW/HW 1.16, PW/PL 1.07, PW/PA 1.36, PW/PB 1.55; sides rather widely reflexed in anterior halves, more narrowly so in posterior parts, gently arcuate in front, distinctly and rather widely sinuate at about basal sixth, and then slightly divergent towards hind angles, which are nearly rectangular and obviously reflexed; apex straight, obviously wider than base, PA/PB 1.15, with front angles obtuse, hardly produced, but widely reflexed; base nearly straight for the most part, briefly but deeply emarginate on each side behind hind angle, the anterior margin of the emarginate portion being perpendicular to the mid-line, not oblique; hind angles nearly rectangular or slightly sharp, widely reflexed; dorsum convex, steeply declivous at the lateral and ante-basal parts; median line deeply impressed on the disc, apical transverse impression mal-defined, basal one narrow and uneven, separating narrow basal area from pronotal disc; basal foveae small though fairly deep.

Elytra oblong-oval, widest at about middle; EW/PW 1.55, EL/PL 2.72, EL/EW 1.64; shoulders widely rounded together with prehumeral parts, which are narrowly bordered and gently oblique at the antero-internal portions; sides very feebly arcuate from behind shoulders to behind the level of the eighth umbilicate pore of the marginal series, and conjointly and widely rounded at apices, without appreciable preapical emargination; dorsum convex and steeply declivous at the lateral and apical parts, though longitudinally depressed on the disc, sparsely covered with minute erect hairs in lateral marginal areas; striation peculiar, striae 1 and 2 practically entire, 3 and 4 much abbreviated behind middle and obsolete near base, 5 also obsolete near base but extending posteriorly to the level of preapical pore through an inward curve at the level of setiferous dorsal pore of the external series, 6 and 7 very slight though mostly traceable; intervals slightly convex near suture, completely flat at the lateral part; stria 3 with two setiferous dorsal pores at 2/3 and 1/3 from base, respectively; stria 5 with a single setiferous dorsal pore at about 3/5 from base.

Legs fairly long; mesotarsus about five-eighths as long as mesotibia, metatarsus about three-fourths as long as metatibia; tarsomere 1 about as long as tarsomeres 2–4 combined in both meso- and metatarsi, tarsomeres 3 and 4 each only slightly longer than wide in mesotarsus.

Male unknown.

*Type specimen.* Holotype: ♀, 23–VI–2004, S. UENO leg. Deposited in the collection of the Department of Zoology, National Science Museum (Nat. Hist.), Tokyo.

*Type locality.* Mt. Wawu Shan, E side of table top, 2,760 m in altitude, in Wawushan Zhen of Hong'ya Xian, central Sichuan, Southwest China.

*Notes.* The single known specimen of this strange species was found from beneath a slate on the trail at a shaded place. The soil under the slate was blackish and very humid, not clayey. The beetle was agile when exposed and sought shelter in a nar-



row tunnel probably made by an earthworm. No other beetles were found in the same habitat, even from beneath adjoining slates.

## 要 約

上野俊一：中国四川省瓦屋山のチビゴミムシ。—— 瓦屋山は、四川省中央部、大相嶺山脈の支脈の上に聳えたつ塔状の山で、標高差 1,000 m を超える垂直な岩壁と極端な急斜面とに囲まれ、頂上部の標高 2,700–2,800 m あたりが、緩い起伏のある準平面になっている。この平坦部は全体がシラビソ林におおわれ、下生えのヤダケが密生して林床を覆い尽くしている。したがって自然林のなかには、石下にすむような甲虫類を探せる場所がなく、土が露出している流れの岸も、たいていは垂直に近くて、チビゴミムシ類の生息場所に適しない。唯一の例外は歩道で、全面が扁平な切り石で隙間もなく舗装されているが、その下にきわめて良好な生息環境の隠されている所がある。ただし、重い板石を持ち上げて、その下の土や粘土の面を調べたのち元の状態に戻すのは、多大の労力と長時間を要する困難な作業なので、到底、頂上部の全域を調べ尽くせるものではない。

この瓦屋山で、4 種のチビゴミムシ類（すべて新種）が発見された。そのうちの 2 種はケムネチビゴミムシ属に属し、大型の 1 種がサイカイチビゴミムシ亜属 *Pseudepaphius* に、小型のほうキタチビゴミムシ亜属 *Epaphiama* に含まれる。前者は主として山麓部にすみ、後者は亜高山性で、頂上部のシラビソ林のみにみられる。いずれも腐植性で、落ち葉の堆積から篩い出される。前者には *Epaphiopsis* (*Pseudepaphius*) *imurai* S. UENO、後者には *E. (Epaphiama)* *dao* S. UENO という新名を与えた。後者は大相嶺山脈などに分布する固有の種群に含まれるが、前者は日本産の種群に似ている点が多く、今のところ真の類縁関係が確定できない。

第三の種はナガチビゴミムシ群に属し、*Sinotrechiamia* 属の一員だと考えられる。既知のどの種よりも小型で、むしろ *Protrechiamia* 属のものに外見は似ているが、属の特徴のすべてが *Sinotrechiamia* 属のものであることを示しているので、*S. parvus* S. UENO と命名した。またこの機会に、大風頂から記載した *Trechiamia crassipes* S. UENO を *Protrechiamia* 属へ移した。

最後の 1 種は、雌 1 点のみが採集された盲目地中性のチビゴミムシで、現時点では類縁関係が特定できない。しかし、外部形態ではカザフスタンの *Aepiblemus* 属や、四川省の *Duvalioblemus* 属に似ている点が多く、これらと同じアトスジチビゴミムシ群の一員だと考えてもあまり違和感がない。ただし、上翅の条線のようなすがほかに例をみないほど変わり、第 5 条によく発達した 1 剛毛を備えている点が、属群のうちではもちろんのこと、ナガチビゴミムシ群以外のほかの属群においても例外的で、明らかに新属を形成するものと考えられる。それで、道教の始祖である老子が晩年に隠棲したことで、聖地のひとつになっている瓦屋山に因んで、*Laoblemus crypticus* S. UENO という新名を与えた。

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